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WE CLAIM:

1. A composition comprising β human chorionic gonadotropin protein (βhCG) and/or fusions, fragments or analogs thereof, and a chitosan-based adjuvant, wherein the amount of βhCG ranges from about 10 µg to about 500 µg.

2. The composition of claim 1 wherein the amount of βhCG is about 25 µg.

3. The composition of claim 2 wherein the amount of βhCG is about 250 µg.

4. The composition of claim 1-3 wherein the β human chorionic gonadotropin protein comprises a recombinant polypeptide.

5. The composition of claim 4 wherein the recombinant polypeptide further comprises the amino acid sequence of SEQ ID NO: 2 or 4.

6. The composition of claim 1 wherein the chitosan-based adjuvant comprises an emulsion of chitosan, sodium hydroxide, a biodegradable oil, a surfactant, and an aqueous buffer.

7. The composition of claim 6 wherein the biodegradable oil is squalene.

8. The composition of claim 6 wherein the ratio of βhCG protein and/or fusions, fragments or analogs thereof to adjuvant is in the range of about 1:20 (w/w) to about 1:1500 (w/w).

9. The composition of claim 1 wherein the adjuvant comprises chitosan, a metal salt, and an aqueous buffer.

10. The composition of claim 9 wherein the metal salt is selected from the group consisting of zinc acetate, nickel sulfate, and copper sulfate.

11. The composition of claim 9 wherein the ratio of βhCG, fragments or analogs thereof to adjuvant is in the range of about 1:20 (w/w) to about 1:1500 (w/w).

12. The composition of claim 4 wherein the recombinant βhCG comprises a fusion protein consisting essentially of a βhCG protein or fragment or analog thereof joined to a β-galactosidase protein or fragment thereof.

13. A method of inducing infertility in a female mammal comprising administering at least one dose of a vaccine containing a βhCG proteins and/or fusions, fragments or analogs thereof in combination with a chitosan-based adjuvant in an amount effective to stimulate production of antibodies which recognize native circulating hCG proteins.

14. The method of claim 13 wherein the amount of βhCG ranges from about 10 µg to about 500 µg

15. The method of claim 14 wherein the amount of βhCG is about 250 µg.

16. The method of claim 13-15 wherein the β human chorionic gonadotropin protein comprises a recombinant polypeptide.

17. The method of claim 16 wherein the recombinant polypeptide further comprises the amino acid sequence of SEQ ID NO: 2 or 4.

18. The method of claim 13 wherein the chitosan-based adjuvant comprises an emulsion of chitosan, sodium hydroxide, a biodegradable oil, a surfactant, and an aqueous buffer.

19. The method of claim 18 wherein the biodegradable oil is squalene.

20. The method of claim 18 wherein the ratio of βhCG protein and/or fusions, fragments or analogs thereof to adjuvant is in the range of about 1:20 (w/w) to about 1:1500 (w/w).

21. The method of claim 13 wherein the adjuvant comprises chitosan, a metal salt, and an aqueous buffer.

22. The method of claim 21 wherein the metal salt is selected from the group consisting of zinc acetate, nickel sulfate, and copper sulfate.

23. The method of claim 21 wherein the ratio of βhCG protein and/or fusions, fragments or analogs thereof to adjuvant is in the range of about 1:20 (w/w) to about 1:1500 (w/w).

24. The method of claim 16 wherein the recombinant βhCG comprises a fusion protein consisting essentially of a βhCG protein or fragment or analog thereof joined to a β-galactosidase protein or fragment thereof.

25. A method for inducing transient infertility in a mammal comprising:

a) administering a recombinant βhCG protein and/or fusion, fragment or analog thereof expressed by a species of host cell in combination with a chitosan-based adjuvant; and

b) administering a recombinant βhCG protein, fragment or analog thereof, expressed by a different species of host cell than said recombinant βhCG administered in step a) in combination with a chitosan-based adjuvant; and

wherein the amount of βhCG administered in step b) is effective to stimulate production of antibodies which recognize native circulating hCG proteins.

26. The method of claim 25 wherein the amount of βhCG ranges from about 10 µg to about 500 µg.

27. The method of claim 26 wherein the amount of βhCG is about 250 µg.

28. The method of claim 25 wherein the recombinant polypeptide further comprises the amino acid sequence of SEQ ID NO: 2 or 4.

29. The method of claim 25 wherein the chitosan-based adjuvant comprises an emulsion of chitosan, sodium hydroxide, a biodegradable oil, a surfactant, and an aqueous buffer.

30. The method of claim 29 wherein the biodegradable oil is squalene.

31. The method of claim 29 wherein the ratio of βhCG protein and/or fusions, fragments or analogs thereof to adjuvant is in the range of about 1:20 (w/w) to about 1:1500 (w/w).

32. The method of claim 25 wherein the adjuvant comprises chitosan, a metal salt, and an aqueous buffer.

33. The method of claim 32 wherein the metal salt is selected from the group consisting of zinc acetate, nickel sulfate, and copper sulfate.

34. The method of claim 32 wherein the ratio of βhCG proteins and/or fusions, fragments or analogs thereof to adjuvant is in the range of about 1:20 (w/w) to about 1:1500 (w/w).

35. The method of claim 25 wherein the recombinant βhCG comprises a fusion protein consisting essentially of a βhCG protein or fragment or analog thereof joined to a β-galactosidase protein or fragment thereof.

36. A method of inducing antibody formation in a mammal comprising:

a) administering a recombinant βhCG protein and/or fusion, fragment or analog thereof expressed by a species of host cell in combination with a chitosan-based adjuvant; and

b) administering a recombinant βhCG protein and/or fusion, fragment or analog thereof, expressed by a different species of host cell than said recombinant βhCG administered in step a) in combination with a chitosan-based adjuvant; and

wherein the amount of βhCG administered in step b) is effective to stimulate production of antibodies which recognize native circulating hCG proteins.

37. The method of claim 36 wherein the amount of βhCG ranges from about 10 µg to about 500 µg.

38. The method of claim 37 wherein the amount of βhCG is about 250 µg.

39. The method of claim 37 wherein the recombinant polypeptide further comprises the amino acid sequence of SEQ ID NO: 2 or 4.

40. The method of claim 36 wherein the chitosan-based adjuvant comprises an emulsion of chitosan, sodium hydroxide, a biodegradable oil, a surfactant, and an aqueous buffer.

41. The method of claim 40 wherein the biodegradable oil is squalene.

42. The method of claim 40 wherein the ratio of βhCG proteins and/or fusions, fragments or analogs thereof to adjuvant is in the range of about 1:20 (w/w) to about 1:1500 (w/w).

43. The method of claim 36 wherein the adjuvant comprises chitosan, a metal salt, and an aqueous buffer.

44. The method of claim 43 wherein the metal salt is selected from the group consisting of zinc acetate, nickel sulfate, and copper sulfate.

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45. The method of claim 43 wherein the ratio of βhCG proteins and/or fusions, fragments or analogs thereof to adjuvant is in the range of about 1:20 (w/w) to about 1:1500 (w/w).

46. The method of claim 36 wherein the recombinant βhCG comprises a fusion protein consisting essentially of a βhCG protein or fragment or analog thereof joined to a β-galactosidase protein or fragment thereof.

47. The use of βhCG for the manufacture of a medicament for inducing transient infertility in a mammal wherein the medicament comprises an injectable formulation containing β human chorionic gonadotropin proteins and/or fusions, fragments or analogs thereof, in combination with a chitosan-based adjuvant in an amount effective to stimulate production of antibodies which recognize native circulating hCG proteins.

48. The use of claim 47 wherein the amount of βhCG ranges from about 10 μg to about 500 μg.

49. The use of claim 48 wherein the amount of βhCG is about 250 μg.

50. The use of claim 47 wherein the β human chorionic gonadotropin protein comprises a recombinant polypeptide.

51. The use of claim 50 wherein the recombinant polypeptide further comprises the amino acid sequence of SEQ ID NO: 2 or 4.

52. The use of claim 47 wherein the chitosan-based adjuvant comprises an emulsion of chitosan, sodium hydroxide, a biodegradable oil, a surfactant, and an aqueous buffer.

53. The use of claim 52 wherein the biodegradable oil is squalene.

54. The use of claim 52 wherein the ratio of βhCG protein, fragments or analogs thereof to adjuvant is in the range of about 1:20 (w/w) to about 1:1500 (w/w).

55. The use of claim 47 wherein the adjuvant comprises chitosan, a metal salt, and an aqueous buffer.

56. The use of claim 55 wherein the metal salt is selected from the group consisting of zinc acetate, nickel sulfate, and copper sulfate.

57. The use of claim 55 wherein the ratio of βhCG proteins and/or fusions, fragments or analogs thereof to adjuvant is in the range of about 1:20 (w/w) to about 1:1500 (w/w).

58. The use of claim 50 wherein the recombinant βhCG comprises a fusion protein consisting essentially of a βhCG protein or fragment or analog thereof joined to a β-galactosidase protein or fragment thereof.